**Interviewee: WP_01**

**Name: Alistair McLean**

**Title/Role: Curator of Natural Science**

**Organisation: Museums Sheffield**

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**Interviewer: Paula Goodale**

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Q: So first of all I'd like to start with-- could you tell me about your role at the museum and how the weather station fits into your routine?

A: Right, well yeah, as a curator the role is extremely varied, and central to it is the premise that we look after the collections, and part of those collections is the meteorological data set, so that's 132 years worth of data. So from the point of view of the Met station, yes it's really treated just like any other part of the collection, and that's not just the archival stuff written up into the books, that's also the electronic data, the database that contains all the information these days. So as far as routine's concerned I--, in the past we've had to get the data out and do the weather as we always call it, at nine 'o clock UTC. Because everything now is electronic it's slightly more flexible, so we don't necessarily have to be here at nine 'o clock on the dot, we can do it slightly later in the day if needs be. But I do try to get it out as close to nine 'o clock as humanly possible, partly because again, in the past we've always sent it out to various people, but now we put it out on Facebook and on Twitter as well, on various social media sites, just really as an interest piece more than anything else. People are always interested in what the weather is doing. Yeah, and we get an awful lot of enquiries about meteorology. We--,

Q: What sort of people enquire?

A: All sorts, a lot of academic enquiries from undergraduate students and postgraduate just wanting a chunk of data for an analysis that they're doing, whether it be on building design or actual climate change or environmental changes, through to ones like this, which is looking at the more societal implications of the data. We also get a lot of enquiries regarding insurance claims, in particular people wanting to know how hard the wind was blowing on a particular date because the tiles have blown off their roof, and insurance companies tend to be very picky about paying out, they need to know that the wind is over a certain threshold. So we're able to either confirm or deny.

Q: So how do you feel about providing that sort of data? Is that--,

A: It's partly critical because we charge for it. The weather station has an annual maintenance charge and we've got to really generate that amount of money at least to be able to keep it running. So we do charge a relatively nominal fee for private individuals, a slightly higher fee for companies and institutions. Academic enquiries are always free.

Q: Right, is there a reason for that?

A: The data is technically--, well, we try and make it as publicly domain as is humanly possible, so from our point of view we want it to be used for academic purposes. Insurance claims are a different kettle of fish because somebody's going to make money from it somewhere along the line, so we don't have any problems from that point of view.

Q: So you don't get any income from the Met Office for the weather station upkeep?

A: They pay us a set amount of money per year, and it's mainly to maintain the ground that we've got out there. Now it's a bit confusing this, but the situation that we have at the moment is in the Met compound there are two sets of equipment. There's our equipment and then there's the Met Office's equipment. That wasn't the case prior to 2010, there was just one set and it was ours, and we provided all of the data to the Met Office. But the Met Office need to be able to access the data now 24/7, so we were sending it to them monthly, which has been the situation for the past--, well, for over a century. But they now need up to the minute data, so we allow them to install their equipment into our compound. But in order to make sure that we still maintain control of some data that's in there and allow us to put it out there into the public domain, we maintain our own set of equipment as well.

Q: Okay, so that raises an interesting question then, so do you see the data as yours or do you see it as the public's, or who owns that data?

A: Well this is an interesting point because historically the station was actually set up as a private concern by the first curator. He was asked by the city council way back in 1880, I think it was, to set up a weather station in order to monitor temperatures for public health more than anything else, but he wasn't paid by the council to do it, he kind of just did a lot of it off his own back. So the situation as it stands at the moment is that the weather station is operated by Museum Sheffield but we aren't, I believe, technically paid by the council to do it. It's still kind of in limbo a little bit as to what it is. It's not technically a museum service, it's not technically a council service, it sits somewhere in the middle. But--, and that's one of the reasons why we charge for the data.

Q: Are you unique, do you believe, in the museum sector, in having a weather station?

A: I think we had a report commissioned saying exactly that. We are I think one of, if not the only museum in the country that has one and certainly has displays on it. And yeah, to be frank I think we ought to make more of it than we do, but it's very difficult to do so because of space constraints.

Q: So you talked about--, so you provide data to enquirers-- Do you use the data that you collect within the Museum in any way at all? Do you use it in any activities that go on here?

A: We have the displays downstairs, we also provide data sheets to our shop and they can be--, they're sold for I think a fairly nominal price, so if anybody comes into the Museum and wants to know what the data is then they can buy it. We offer a subscription service as well, both to

companies, council and to private individuals, and we send out the data to various libraries as well on a daily basis, and Sheffield University.

Q: So that's libraries within Sheffield?

A: Libraries within Sheffield, yeah, and they believe also the Central Library collates all of our data sheets as well. So they've got copies of everything that we've ever sent out.

Q: Right, and do they make it available to the public?

A: As far as I'm concerned, yes. But the main source is obviously us. We've got everything on a big database rather than on individual sheets so we're--, it's a lot easier coming direct to us than it is going anywhere else. We do on occasion use the weather data to determine what the environmental conditions are outside, so we can relate them to what's going on inside. Environmental conditions such as humidity and temperature particularly are very important for museum materials, so if we know that the humidity's just shot up to 70% inside we can look at what our weather station's recording outside and collate the two and try and fathom out what's going on.

Q: Yeah, and do you use that for managing the collection?

A: Yes.

Q: Have you got sensitive materials here that are--,

A: It's all sensitive, yeah.

Q: In terms of preservation?

A: Yeah, pretty much everything is sensitive. We try to aim for about 50% our age, so on a day like today when it's about 60% outside it's not a big deal. But when it's foggy or rainy and it's more like 100% we can start to see an impact inside.

Q: And so do you think that's really--, has that contributed in--,

A: Absolutely, yeah. As we say, there's very few museums out there that have got that kind of facility. There's also little research projects that we do from time to time. At the moment one of my research projects, I'm looking at the affects of weather on black ants. This is--, I feel a little but gazumped by the BBC because they're currently doing the same project but I've been doing it longer! [Laughs] It's--, the black garden ant, the males, the winged males, all emerge seemingly all at once and no one currently knows why, what environmental conditions actually prompt them to do it. There's a belief that it's something to do with humidity or rain or temperature but nobody's been able to tie it up together. So for the past five years I've been recording the data that all of the ants emerge and recording what the weather's doing on that particular date, and hopefully we'll be able to tie the two together after a decade or so.

Q: [Laughs] It's long term isn't it?

A: Very much so.

Q: Yeah, so what will you do with that?

A: That will get published in a paper eventually. We usually publish any scientific papers that we do in the local Natural History Society's--, the *Sorby Record* it's called, from the Sorby Natural History Society, so a proper publication, albeit a local one.

Q: But for public consumption and anyone that's interested?

A: Absolutely, yeah.

Q: Would you see your audience as natural scientists or gardeners?

A: Everybody, everybody's interested in the weather. We did a display a few years ago called Whatever the Weather, in fact I think it was our second temporary exhibition after the refurbishment here, and it just really showed how much people love the weather regardless of what they are. So no, as far as audience is concerned it's everybody. The majority of our enquiries I would say are probably academic, but we do get many hundreds from private citizens as well.

Q: Okay, so you mentioned that you do research. Do you get anything else out of your kind of personal engagement with the weather station? Is it something that you're particularly interested in?

A: I feel an inflated sense of importance [both laugh]. When I first started doing the weather--, doing the weather! Which was in 1998, I always liked to say whenever the weather forecast came on and it had a dot over Sheffield, I said, "That's my data that is." And it's always fantastic, we get a lot of press interest as well, probably more than any other department in the Museum. Because whenever there's a freak weather event, whether it be how much snow there's been, how much rain there's been, the press are very interested in it, they want to do the stories and it's me that they contact about it. Every month we send a summary over to the *Sheffield Star* and they almost always print it saying what the weather's done this month in terms of long term average. And it's usually--, I have to say it's usually nothing much, I mean that's the point of average [laughs], everything is pretty much average, but yeah, once a year, at least once a year there's a long term record broken in something.

Q: So there's a sort of personal sense of being part of a wider--, a bigger thing?

A: Yeah, absolutely, and yeah, it does convey, as I say, an inflated sense of importance. I am one tiny little cog in a very big wheel but at the same time when you're in charge of what is one of the longest running weather stations in the country you do feel a sense of pride. I think--, I've never actually added it up but I think there's only been six or seven curators in 130 years in charge of the weather station, partly because the founder of the station did it for 50 years. But I've now been doing it for over ten years, my predecessor was doing it for 25 years. And you just feel like you're the next link in the chain, which of course conveys a lot of pressure on to make sure you don't cock it up as well [laughs]. The weather station, during its life has been under threat on a couple of occasions. I think it's safe to say that, and you don't want you to be the last curator.

Q: Right, so you feel a sense of duty?

A: Responsibility. Yeah, absolutely.

Q: Okay, so I actually want to move on next to more of the history of the weather station. So it is one of the longest running in the UK it seems, and there are very few that--, official ones that have been there for longer. So can you tell me a little bit about its history, how and why it was set up, the people that have been involved with it over the years?

A: Okay, well it was set up by a guy called Elijah Howarth, who was nicknamed the Prophet because he was quite good at forecasting the weather. This was in an age when there were no super computers around, it was literally a case of licking your finger and sticking it in the air and saying, "I think it will rain today," and he was particularly good at it. He was our second curator but, well, it's a long story, I won't get into that.

Q: Hmm, so that was looking at the sky and--, did he have any instruments at that stage?

A: He had some instruments, yeah. We've got photographs--, what happened was that the City Corporation, which was the council at the time, were concerned that from a public health point of view, that we were never able to predict when there'd be any outbreaks of stomach upsets and the like. And there'd been research done that suggested that knowing what the weather conditions were like could help with that. So they scouted around and started looking for somebody suitable to run a weather station, and the only person that they had in their employ that might be interested in doing it was Elijah Howarth. So he joined the Royal Meteorological Society, became a Fellow quite quickly, and set up a basic weather station of just a Stevenson screen, a few thermometers an a rain gauge. And it was situated out in the park. It's not in the place where it is today, it's about ten metres away, where it originally was. Originally there was no fence around it or anything, it was just sat in the park, which I always--, when I see photographs of it I think, how did that survive? But in all fairness it was situated directly in front of the park warden's hut, that's how it survived.

Q: Right, so it had security?

A: It had a guard, yes. So after a few years Howarth added more and more bits of kit to it. One of the things, which you don't find on many weather stations, were some ground thermometers that were actually buried underground. So there's a 30cm and a metre thermometer. And the reason why those were installed is because Howarth had a theory, I think he must have read this somewhere, I don't think it was his personal theory, but he believed that the temperature of the water table underground was directly correlated to outbreaks of stomach upsets, diarrhoea and all kinds of other unpleasantness. And he wrote a paper on the subject, don't ask me where it's published, I can't remember, but there was a direct correlation between underground temperatures and these outbreaks. So he was able to predict when the next outbreak would occur, and the hospital is across the road, so that was very, very useful.

Q: And was it very well established at that point in time, the hospital?

A: I believe the hospital was also brand new.

Q: Yeah, I would say it's a Victorian--,

A: It is a Victorian one, I think it was built in 1886, you'd have to have a look at it. Then in 1905 the weather station had to be uprooted temporarily because Firth Court opened across the way, and it was opened by King George whoever it was [laughs], The King in 1905, and Weston Park was just full of people so they had to move all the kit out. So we have a day missing from 1905, which is kind of funny, but we know why! But he installed other things. In 1896 he put a Campbell Stokes sun measuring device up on the roof of the Museum. That's always been on the roof, it still is at the moment as well.

Q: What does that--,

A: It literally measures hourly sunshine.

Q: Hours of sunshine? Right.

A: So it's just another facet really to what we record.

Q: And that equipment's still there is it?

A: It is. We don't use it now, we stopped using it last year, it's been replaced by a solarimeter, an electronic device, by the Met Office. But that equipment, we were still recording manually up until last year, and it did get a bit of a pain around Christmas time 'cause people had to come in and change the sun card over.

Q: And go up on the roof?

A: And go up on the roof in all weather! [Both laugh] But yeah, the device has had to move several times because of the growth of trees, which I find absolutely fascinating that it's been there so long. So the beech tree that's at the front of the Museum, you can't see it from here, but when the Museum was first built as it is today that beech tree wasn't a problem, but now it is, so we had to move the device.

Q: And is that on advice from the Met Office?

A: Yeah, our relationship with the Met Office is an interesting one. Originally it was set up as a private concern and then--,

Q: When did they get involved?

A: It would have been pretty much around--, not long after their foundation I think, I can't remember when the Met Office were actually founded.

Q: I should know that, I've been reading about them [laughs].

A: Well it would be interesting to tie it up but I think when the Met Office were founded and actually became a proper governmental body, I think as part of the Air Ministry originally, that's when they got in touch with Howarth and yes, he started to send data down to them and obviously give them all of our--, any data that had been recorded previously. But it was nineteenth century still.

Q: Oh okay, so is there any record of, you know, how he felt about that? Did he--,

A: There's records of how the Met Office felt about Howarth! [Laughs]. To begin with he was--, the relationship was very good and they were--, the Met Office were very thrilled and thought that he was a very professional guy. When Howarth retired in 1928 he continued to run the weather station because--, partly because he didn't want to hand it over to anybody else, partly I think because the Museum didn't consider it as a part of what they should be doing, they thought that it was Howarth's baby, they should just carry on. But he was getting on quite a bit and the Met Office did begin to say that Howarth was getting difficult to work with, we have letters to that effect. And Howarth did end his life in--, well the records say an asylum, but I think that might just be an old term for in a hospital rather than in an institution, but I've never got to the bottom of that. But I suspect he may have been suffering from Alzheimer's or dementia or something along those lines, he was getting a bit cantankerous in his old age.

Q: But the data was important enough for the Met Office to continue pursuing it?

A: Absolutely. But towards the end of Howarth's life, and he was recording pretty much all the way up to his death, the station began to get a bit dilapidated and that's when the Museum took over, and I think it would have been--, I think 1937 is the date that rings a bell. And Joseph Baggaley who was Howarth's successor at the Museum who'd been an assistant meteorologist for most of his career already in Sheffield, he took over management of the weather station, got it all the way back up to spec, and the Met office were very happy. I should say that during World War One, Joseph Baggaley was called up and he served as a meteorologist for the--, it would have been the Royal Air Corps at that point. But he caught dysentery so he was sent home. But he was a field meteorologist out in the trenches with his weather recording equipment, getting shot at. So he was sent home, and then in the Second World War Baggaley again had to take weather readings, quite often late at night when the--,

Q: So that was here?

A: That was here. This was during the Blitzes, the various air raids, obviously the various weather readings were very important. So the Air Ministry and the Met Office and the RAF would contact Baggaley and say, "We need hour by hour updates of what the wind's doing." And he was up on the Museum roof on 1940 taking the wind readings literally throughout the night, and shortly after that the Museum was bombed. Now I have a little pep theory, and there's no way that we could ever corroborate this, the Museum was hit, direct hit, and the usual explanation is that the Luftwaffe got lost and were trying to hit the factories on the East End and ended up in the West End instead. I have a pep theory that they may have been aiming for the Met station, but I don't know how likely that is or anything--, whether we'd be able to prove it. But they didn't hit the Met station, they did hit the Museum roof and blew a big hole in it. But the Met station carried on even though the--, half of the Museum building was derelict for the next 20 years, the Met station carried on.

Q: And that was still managed by a curator was it?

A: Still managed by a curator. The biggest change that happened to the way that the Museum was organised was in the 1950s. So up until then the curator was essentially the Director of

the Museum, he was in charge of the lot. And then in the 1950s they brought in specialist curators, so there'd be a director at the top and then people underneath that did the nitty gritty. And the first person to take over was not a curator at all at that point, it was a learning assistant for a few years throughout the 1950s, I can't recall his name.

Q: And was that part of his learning role?

A: Not really, not at all, it was just you're a person, you'll do! [Laughs] And the director at that time was a geologist by trade, so there has always been a link between the geology and the meteorology 'cause of the Earth sciences side of things. But the director didn't do the Met stuff, he left it first to a learning person and then later to a curator.

Q: So do you think it was seen as less important during that time, just something that needed to be done?

A: No, I don't think so. There was some investment at that time, new masts were put up on the Museum roof, the latest wind recording technology. One of the amazing things that they had at that time was this enormous--, I can't remember the length of the mast, it was something like 20 metres, up on the roof with an anemometer on top, and they had a mechanism that went into the Museum through various cogs and gears, and then into a display case showing what the wind was actually doing, live. I mean that must have been one of the first live weather feeds in the country for a public audience, and it was using a Dines pressure anemograph, I think it was called. But absolutely amazing.

Q: And was it something the public were interested in?

A: Yeah, as always they got loads of enquiries, the press was still involved in the 1950s. And then in the 1960s, well, things carried on as normal really. So through a period of what was austerity for most museum departments, the weather station carried on just ticking over. And again throughout the 1970s, and the biggest change happened really in the 1980s when they--, the powers that be agreed to fund a meteorologist to manage the station, so an extra member of staff. And this was because we were receiving so many enquiries. I mean the figure that's oft quoted is 8,000 a year, which is an awful lot for somebody to deal with on their own. So we did get at that point a curator of Earth sciences, and their job was specifically to manage the geology collections and manage the weather station. So the natural science--, natural history department as it was then expanded partly in order to cope with the quantity of weather data that was coming in, and the amount of interest that there was in it.

Q: So that was driven by the demand was it?

A: Yes.

Q: That there was seen as a--, again, was it an economically valuable service at that point in time or--,

A: Yeah I think so, as far as I'm aware. I mean I'm not the best person to ask that question of because I wasn't here. But yeah, I believe there were still economic reasons for doing it, but at the same time it was public interest as well. And in those days if--, especially in somewhere

that's quite left wing like Sheffield is, if the people wanted it then the people got it, which is fantastic and the way it should be. And that post really remained in position from the early 1980s up to 2010, two different people did it. The first was with us, Steve Garland, he was with us for a few years and then Gaynor Boon, who was my direct predecessor, was here for 25 years. I think it's safe to say that there's probably nobody living that knows more about the Met station than Gaynor. But unfortunately she's very poorly at the moment.

Q: Yeah, so was she trained as a meteorologist?

A: No, she was a geologist, a palynologist to be precise, she was interested in pollen. But when we--, well all of us that ran the weather station, did the Met Office's meteorological training. And that teaches a wide variety of skills including quite a few that we don't use anymore unfortunately, we just don't have the time to do it.

Q: So is that something they ask you to do or do you just say, "We'd quite like to do that because it would be useful?"

A: A combination of both. At that point we were the sole supplier of data from the station to the Met Office, so it was obviously in their best interests to let us do it. We didn't pay for it, we just went down to Bracknell and to the army barracks down there and did the training. I did it myself when I first started here and it's fantastic training, real--, it's not too basic but fairly straightforward.

Q: And that's about raising quality is it?

A: Yes it is. Quality was very important, as it still is because any data that we sent was rigorously checked by the Met Office, and at that point there was a program we used called DISCS right at the beginning--, at the start of the computer revolution, that we'd have to fill in each month and send it down to the Met Office, and any data that was considered wrong for whatever reason was always sent back with a red underline, and we felt bad that we'd made a mistake of some variety. It didn't happen very often.

Q: But what sort of mistakes? Would it be in--,

A: Oh, it was quite often a missing decimal point or something like that.

Q: Right, okay, so human error rather than--,

A: Yeah, absolutely. There were sometimes--, there were equipment malfunctions as there always are. The Met Office always supplied us with a range of equipment, so when our maximum thermometer went, which they sometimes do, we'd have a spare, things like that. And there were occasions where somebody might have got into the Met compound and done something that they shouldn't have done, particularly to the rain gauge, I have to say!

Q: Yes, I'll use my imagination!

A: That wasn't very nice! But that happened a few times. There were also occasions when the equipment went missing, it was stolen. The way that the Campbell Stokes device works is there's a glass sphere that focuses the rays of the sun on to the card at the back, and the

glass sphere--, well, in the 1990s was worth about £3,000, and somebody shinned up the Museum roof and nicked it, which must have been quite desperate for it! [Laughs] But then we did have a problem because the Met Office weren't able to replace that so we had to put out a public appeal, and in a matter of weeks we managed to raise the money to buy a new one.

Q: Did you? So there was enough interest there to--, yeah?

A: There always is about the weather.

Q: I mean what kind of people contribute in that? Do you have a feel for--,

A: Yeah, we haven't had a drive of that kind, but in my experience just everybody is interested in it. I think if you went downstairs and told people, "We've got a 130 year old weather station, it's one of the oldest in the country but we're going to close it down," they'd do their nut, not to put too fine a point on it!

Q: That's staff, visitors?

A: I think everybody, everybody concerned, including the council. They'd all be very concerned if we were to say that, me not the least. And I have to say when we lost out meteorologist, when Gaynor left in 2010, the Met station was at risk most definitely because we--, at that point it took considerably longer to deal with the weather station stuff than it does now, I mean literally an hour or a day. And when we were 33% down on staff in the section I don't think we would have been able to absorb the responsibilities. So what I ended up doing was writing a database in Access that sped up the process. Previously--, all of our data is now uploaded from a data logger that's outside in the park and it goes into a computer. But we were still at the stage of having to read the figures off, so we would have to work out the maximums, the minimums by looking at a stream of data. But obviously a computer can do that for you, so being a bit of a database specialist I just sat down and in a week or so wrote a database that automated the whole process. So now it takes about five minutes every morning.

Q: Yeah, so your motivation there was?

A: Saving the weather station. I did most--, well a lot of it in my own time because well, again, there was slightly that pressure that I didn't want to be the last curator to be in charge of that weather station. Now admittedly at that point I wasn't in charge of it, my line manager was in charge of it, but at the same time the point was a fair one. And yeah, I think the station was at risk at that point. If we hadn't have done that I don't know what would have happened.

Q: And do you think that would have been a loss? How do you think that would have been a loss to the museum if it would have gone at that point?

A: I think the--, well, the most obvious thing is bad publicity. We would have been slated in the press, and rightly so! So from that point of view, yeah, it would have been disastrous. From a visitor engagement point of view we would have lost a very large chunk of our enquirer base so we would have had less relevance to the people of Sheffield. And in these times of austerity it's one of the ways that we've proved our worth, is by how many people we're

touching and affecting. And meteorology not only holds its own amongst all the other disciplines, I think it's the most enquired service that we operate.

Q: Right, which you wouldn't expect would you I suppose? Well I mean because you have that unique resource but--,

A: Yeah, it's always been the way. I mean we--, I count--, there's two types of enquiry that we operate really. There's the person that phones you up and says, "I want this data from this date," so the ad hoc enquirers, and we get as many of those as we do for any other discipline. But what we also have are the people that we send out data to monthly because that's what we do, the people that we send out daily data to that are all the regular enquirers. And if you add those up there's over 200 of them a month. So we still--, we have maybe ten times more enquirers from that point of view than any other discipline or department, including the biological side, which is where I'm from originally. So it is hugely popular.

Q: So that's kind of then--, that moves me on to my next--, but about the weather station in the context of the Museum. You've talked quite a lot about, you know, the kind of people that enquire about it and how it kind of fits in here. What--, I really want to probe a bit more on the value that it creates, the added value that it provides. So you provide this data to lots of different organisations but do you think it also provides any social or cultural value in what the Museum does?

A: Well from a sense of continuity, yes, certainly. It's not often that you can say that you've got a service that's lasted that length of time that's always been operated in the same way. To be honest one of my goals for the weather station is to try and pull it back a little bit to what we were doing when the station first opened in the nineteenth century, to be more public. Now with the Twitter feed we've got around 600 people following us just receiving a daily update.

Q: Are they local? Do you know how far they--,

A: Impossible to tell with Twitter. A lot of them--, well yes, they are local, but what I always find fascinating is as soon as I tweet, which I very rarely do, any kind of record that we've broken or if there's any particular weather event going on and that I'm able to talk about, we get another 100 followers from that.

Q: Really?

A: Yeah, and we get interest from professional meteorologists, particularly from the Paul Hudson's and people like that. So when we had the high speed winds for instance in January, what was interesting there was that I think the strongest gust of wind that was recorded was from the anemograph on Bradfield Moor, which was 96 miles per hour. We recorded about 50 miles an hour here, and that in itself was very interesting to tweet about because it was such a big difference, and it's partly because out anemometer is a lot more sheltered than the one that's up on Bradfield. So from that point of view there's an awful lot of public interest, so we're providing an awful lot of value. And bearing in mind that we're doing it as part of a

service that doesn't necessarily fit that well with the Met station. I think economically for the city we're providing, yeah, a hell of a lot of interest and providing, yeah, a social service.

Q: Yeah, so economically in terms of income to the Museum?

A: Income to the Museum and the fact that we're providing data for a lot lower amount of money than I think anybody else because again, of that whole concept of public ownership and accessibility. I mean academic enquiries from the Met Office I believe are free, but the Met Office is such a vast organisation that it can take weeks, if not months, for them to get back to you. Whereas I tend to try and work as best as possible and get back that same day.

Q: Yeah, so you're more immediate?

A: We're just local, yeah, that's the best way of describing it, local, which does cause a problem when--, I had an enquiry this morning from Doncaster Police. I'm not sure whether I'm allowed to say this but, yeah. But it was just asking for weather data for a particular date in Doncaster. I can't provide that because I don't have the weather data from Doncaster.

Q: But you can tell them where they might be able to find it?

A: I've told them to try the Met Office or Weather Net, so--,

Q: Yeah, okay. And so it's--, you've got the small display downstairs and you've mentioned these other public displays in the past. Does the weather--, what kind of role does it play in public programmes at the moment? Does it play any role in--, apart from displays, educational, any of those type of activities?

A: We're in the middle of putting together a new display idea, and the theme of the display is conservation and ecology. And my goal is, is to try and feed the weather data into that. One of the problems that we have is that I'm not a meteorologist, so I can't analyse the data, or if I --, well, the bits that I do, it's in a fairly amateurish way and I can't guarantee that it's correct. So that's going to be tricky.

Q: Hmm, so how will you overcome that do you think?

A: Not sure yet! [Both laugh] I mean one possibility is that we may be able to get volunteers in who are meteorologists but as you can imagine they're few and far between. So we'll have to try and figure that out. There also may be ways that we can--, that we can just use fairly basic analytical techniques to get the point across. So for instance we know that the temperature has increased, according to our data. Now, why the temperature has increased is for other people to wrangle about. My own personal view is that it has something to do with the number of cars coming past the station and the amount of tarmac that there is. But that's one of the interesting values of that particular weather station, is the fact that the area has become more built up over the last 130 years. Whereas if you look at rainfall it's remained stable from an annual point of view, but if you look at it from a--, the number of times we've hit more that 50 millilitres in a 24 hour period, that has increased over the last ten years. Now, I can do that

kind of basic analysis and it's interesting that it does reiterate what people are saying in the multi million pound university projects, so we're really replicating what they're doing on a microcosmic level.

Q: So what's your goal, is it to communicate or to get a dialogue?

A: It would be to communicate that point really. What I'm very keen on is getting across this whole message of the changes that are occurring to wildlife in the area, and some of those changes can be attributed to climate change, almost certainly. Not to labour the point but there's an observed trend for species that are normally found in the south seem to be occurring more and more north over recent years, and we want to get that point across.

Q: Okay, so bringing it back into the natural sciences again?

A: Yeah, a little bit. As I say, it's very difficult for us to do meteorology for meteorological sake, for meteorology's sake because I'm not a meteorologist. Having said that I do think we need to make more of the way the station, from a pure meteorology point of view, if only we had the space.

Q: Oh well good luck with that. When do you think it will come about? Is it a long term plan?

A: It's--, well the project that we're working on at the moment, we're in phase one at present so we should be looking at 2016, 2017.

Q: Right, we'll keep an eye out.

A: Yeah, we'll see how we go with it.

Q: And have schools shown any interest in what you do here?

A: Yeah, in the past we've run programmes with gifted and talented in schools because weather data and analysis and data entry is quite easy to gear towards that side of things. We don't do very much, as far as I'm aware at present, with meteorology in school groups, that's partly because schools are all tightening their belts a little bit, so it's becoming more of a struggle. But again, I think we do need to do more from that side of things with the weather station. The thing is, is that as a weather station we've got three quarters of a million things in the collections, that's not even including all the individual points of data for the Met station, and we have to use all of it. And meteorology is a very interesting part of it and a very important part of it, but it is still just one part of what we do. But hopefully in the future we'll be able to do other stuff.

Q: Yeah, do you have any particular ambitions?

A: With the Met station?

Q: Yeah.

A: To be honest it's not something I've particularly thought about from the point of view of the learning team. My ambition for the learning team is that they do get a bit more scientifically

focussed than perhaps they are, but that's--, that's possibly one of the reasons why we don't do much with the meteorology.

Q: Okay, lastly I want to kind of look at the weather station in its wider environment and what it contributes to, you know, external organisations, people, etc. So how important do you think your weather station is to the Met Office?

A: I get the impression that they consider it very important.

Q: Hmm, why do you think that is?

A: Partly because of its longevity, as has already been said, we're not only one of the oldest climatological stations in the country, we're one of the few that has a complete data set running all the way through, and we're also in this kind of urban, suburban environment, and it's changed over the years from being less urban to being more urban, which they can feed into their super computers. And hopefully I think the idea is that they can use it to model out any changes that are a result of human caused modifications to the environment.

Q: So they monitor your environment or do you--, they kind of engage with you on that?

A: They have in the past, yeah.

Q: Okay. And what about the government global networks, united nations, climate change, all of that? Do you think they--, probably not interested at the individual level but what do they get out of your weather station?

A: Well as I said we're a very small cog in a big wheel. I think the more weather data that you have the better. I have to say that my predecessor was more involved in that side of things. She went to a conference in Madrid while we were developing the plans for the refurbishment here. I've been less involved 'cause frankly I can't be everywhere at once, and that's one of the big--, I think that's one of the biggest problems that we have, is that there were three of us all doing natural science and now there's one of us. So yeah, in terms of who gets what data I assume it all goes through the Met Office. Because the Met Office have got their own equipment in place now, they mainly use our data to compare with their data.

Q: Right, so do they take two sets of measurements from you?

A: Well their equipment, they obtain the measurements so they've got a dial up system for that, so we never even see that side of things. Our data we take independently and I forward at the end of the month down to the Met Office. So I believe what they do, you'll have to ask them, is compare our data with their data to make sure it's actually tallying. So from that point of view it's providing a good check to make sure that we've not got any faulty equipment. The solarimeter on the roof is the one exception. That goes straight to the Met Office and then they send the data to me. The big problem that there's always been in the past with the Met Office is because they were Ministry of Defence we couldn't get access to their network, so we couldn't feed--, we couldn't just plug out computers into their equipment, otherwise we'd only need one set of equipment and everyone would be happy! They wouldn't have that so we ended up with the situation that we've got.

Q: Is that changing do you think?

A: I don't think so, we've not got any plans to. We still work very closely with the Met Office though, they've been up just recently to inspect their equipment. In an ideal world I would prefer it if we could go a little bit back to the way things were, partly because the Met Office were more reliant on us than they are now. And I think in general the Met Office are less reliant on amateur observers, which is essentially what we are. The only reason why they need to be involved with us at all is because they are on our lap in our compound basically.

Q: So do you think it's become more of a business relationship, would that be a way--, or--,

A: I think so, yeah, I would say so. I wouldn't have used that terminology particularly.

Q: No, how would you describe it?

A: I would say it's--, it's more one sided I think, the relationship. In the past they needed us more than we needed them, whereas now it's not the case. Although technically we could say to the Met Office, "Get your equipment out of our compound," I don't think we'd ever do that. So really we're--, it's much less of an equal relationship I think from that point of view. As I say, I mean the changes that were made were in 2010 by my predecessor, and I've always had a slight suspicion, speaking entirely freely, I've always had a slight suspicion that she was concerned that after she left the Met station might fold. So by putting the Met Office's own equipment in there she was ensuring the data at least would carry on being collected, even if it wasn't coming to us. My personal view is that the data coming to us is the only reason why we have a Met station in there. It's--, we obviously need to forward that data on to the Met Office, it's important that they receive it, but their equipment in there is, in my opinion, secondary to our equipment that's in there.

Q: Hmm, so you've got your historical context?

A: Yeah, it means much more to us than it does to the Met Office I think. The Met Office may say differently. I do think they consider the data set and the fact that it's still growing, important. But I think that that weather station out there means more to the people that work in the museum service and the people of Sheffield than it does to anyone else.

Q: Okay, right. So that leads nicely on to my next--, so what about the local community and citizens in general? You get a lot of enquiries, what do they tell you about, you know, the weather station and its importance? Do you get any messages from them about it?

A: They're quite often surprised and thrilled when we're able to tell them the answers to their enquiries.

Q: Really?

A: Yeah, I know that students really value the service that we provide, the fact that we're able to pretty much instantly tell them what they need to know. The general public, again, they just like having that resource because I don't think--, I think they'd struggle to get the data from anywhere else quite honestly. And it would be nice if we were able to put the data out there a

bit more than we do, or tell people a bit more than we do that we have this service. But it's very difficult to do it because aside from anything else we already deal with thousands of enquiries in a year. Could we cope with any more, with just one person in staff?

Q: And you mentioned that you have the press channel as well. Do you get any feedback via that?

A: Again, only in so much that they keep coming back to us. I mean they wouldn't come back to us if they didn't find it interesting, if it didn't help sell their newspapers.

Q: Yes, and the same with the Twitter?

A: And the same with the Twitter, we do get some retweets on Twitter, particularly when--, if I tweet anything, because the Twitter feed is more or less automated, it just--,

Q: Yeah, I think we're following it actually.

A: Brilliant, excellent! It's more or less automated but every now and again there's something interesting to say, usually at the end of a month. The last couple of months, I have to say, it's been really boring [both laugh], we've not had anything at all. But every now and again we'll get the *Star* phoning us up and asking--, wanting to know if it's unusual--, well last year it was, "Is it unusual to have snow in April?" To which my response was, "Well it's actually snowed 50% of the time for the past 130 years in April and not in the others." Whereas this year it was, "Is it unusual for it not to snow at all in a winter?" To which I said, "Technically it did, but only for a day and it didn't settle!" [Laughs]

Q: Okay, and we mentioned commercial interests, insurance and things like that. Do you have any direct connections with that?

A: How do you mean, direct?

Q: So do you--, are you conscious of, you know, creating value for commercial organisations or--,

A: Yeah, a little bit. We provide our data to Weather Net who are a kind of corporate meteorological company that specifically provide data for insurance claims, and I do--, if we do get any potentially problematic or complicated enquiries I do tend to send them to Weather Net. There is always the potential of getting involved in court cases, whether it be for insurance or the police for that matter as well, and we do have to tread carefully.

Q: Is that something you would try to avoid?

A: I don't actively avoid it. It's just something that I'm conscious of, that if I get somebody that wants very specific data I have to be aware that that could end up with me going to court as an expert witness, and I don't know whether my testimony would actually be admissible because I'm not a professional meteorologist. So I do have to be a bit careful from that point of view, so anything that I think is likely to lead to litigation, yeah, I do tend to--, just from the sake of clarity and getting value for money. I also always feel a little bit guilty about charging members of the public for insurance claims. I mean it's 15 quid, it's a fraction of what other companies would charge. But what I tend to do with insurance claimants is check the data

first to see if it's backing up what they're saying and then I'll say, "It's not, and we don't need to charge you for that reason." If it is then I say, "If you want me to send you the data it will cost you."

Q: Yeah, so is that your personal contribution I suppose?

A: I guess so, yeah.

Q: It's not an official policy within--,

A: No I don't think so--,

Q: It's a kind of--, sort of common practice habit?

A: I will say this, it is our official policy that we don't have an official policy on charges for the Met Office--, for the meteorological station. I set all of the charges, it's me that deals with it, so as far as I'm concerned I can charge what I like [laughs]. So I do--, I'm quite = myself, aside from anything else. I do take the view that this data is public--, is in public ownership really, so.

Q: Okay, so that leads on to one final thing. How do you feel about the Met Office now making everything available as open data?

A: I didn't know they were!

Q: Yeah, you can actually go to something called Data Point and the Met Office and various other Ministries make all of their data available on an open license.

A: Oh okay, up to the minute data is it?

Q: I'm not quite sure how up to the minute it is but yeah, you know, you can find individual stations in there or you can download a whole set on different coordinates.

A: Right, no, I absolutely agree and I think that weather data is part of our heritage quite honestly. So just like any other archaeological material that's found--, found in the ground generally has to be passed to an institution that can make it accessible, I believe that weather data is the same, it should be made accessible. Now the question is, is what will happen for insurance claimants?

Q: Yeah, that's kind of the next thing isn't it? It's open but should it be open to everyone, the public, private and public sector organisations?

A: Now that is the question. My only stipulation about--, I mean our data has always been open for academic purposes, my only stipulation is that we get credited for it, which is standard practice. I think that there probably is a risk that if you make it open for everybody, including people that are going to make an awful lot of money from it, you're ripping off the country to a certain extent. The data is publicly owned if you can get something for it.

Q: So do you think there should be some boundaries about use?

A: From my own point of view, my own point of view, yes. Because aside from anything else, if we aren't able to make some kind of money from our Met station then it will fold because I can guarantee you the organisation cannot afford to be paying out X amount of money for maintenance unless it's paid for by public subscription or by enquiries.

Q: Right, so you possibly have a conflict then between the open data set and your own individual services here?

A: Absolutely, yeah, potentially. Again, whenever we send out large quantities of data I make it very clear that that data always needs to be destroyed afterwards and never sent out to any third parties in its raw form. I mean that's exactly to stop it getting into the wrong hands, whoever that should be.

Q: How do you manage that, is it trust?

A: We have to trust, yeah. In the case of academics I tend to send out an email requesting that they agree by return and then I store the email.

Q: So you have a record?

A: I have a record. The reality is, if that ever went to court there's no way it would stand up because there's nothing signed. I think an email, there would be the argument, well anybody could have sent that email from that person' email address. But I just think it stands there as a record, partly of what the weather station's being used for and partly just so I can follow up with people if I do find that the weather data's getting into places where it shouldn't do.

Q: Are you aware of that ever having happened?

A: No, no, as everybody always says, "Absolutely no problem, we will destroy it afterwards," I've never had a problem with it. The only problem I do have with student enquiries is getting hold of a paper they've written based on that data! [Laughs] I always say, "Could you send me a copy of that paper so I can store it in the archive?" And that's the bit that often falls short.

Q: Well we're now being pushed to publish open access in the University repository, so from this point onwards it should become easier.

A: As long as they send me a link to the correct paper! [Both laugh] I don't want to have to keep going trawling through looking for specific papers 'cause I have done and I don't know what the titles are.

Q: No, you're just down to a name.

A: Exactly. Our weather data was used recently in a paper that I have got a copy of in a study on long tailed tits down at--, in Rivelin Valley at the University. I've not read the paper yet but I'm thrilled to bits that it's been used in that way, in a very real sense doing something that I'm particularly passionate about, which is conserving and learning about our animal life. So yeah.

Q: Is that something you want to encourage?

A: Absolutely, we all have our own individual interests, and yes okay, I am interested in meteorology in general. But yeah, my passion is conservation more than anything else, so I'm always going to try and use the weather data, or encourage and push the weather data to be used in that direction as much as possible.

Q: Is there anything more you can do to make that happen do you think?

A: The main thing is, is to make sure as many people know about it and are aware of it as is humanly possible. That's why we went with social media, to get it out there. I think it's safe to say that more people are aware of that weather station now than have ever been aware of it before, possibly in the entire history of the station, and that's down to social media and, all right, appearing in the *Star* quite a bit on a regular basis, even if it does involve having my ugly mug photographed on a regular basis, which I can do without. They've even got a stock photograph of me now! [Both laugh]

Q: Have they? You and Paul the weatherman?

A: Pretty much! And it's strange the way the ebbs and flows of your career and the way it went. I never would have thought for a second that I would have ended up in meteorology, but I'm fortunate in so much that I'm--, well, to be a curator you often have to be a little bit obsessive compulsive, and there is something obsessive compulsive about taking weather readings, getting it accurate, making sure it's right.

Q: So there's been a personal reward and benefit from it?

A: Oh absolutely, definitely, I've--, I'm quite proud of my involvement with the weather station, possibly more proud than I am of any other aspect of my curatorial work.

Q: Really?

A: I think so, because whilst--, the natural history collection in Sheffield, it's all right, it's nowhere near as good as Leeds, it's nowhere near as good as Manchester's. But they haven't got weather stations, we're unique in that respect. So yeah, from that point of view I feel quite proud of what we do.

Q: Okay, I'm out of questions, is there anything else you feel a need to tell me about the weather station and life here at Weston Park?

A: I don't think so. I can take you through the process if you like, because it takes all of five minutes.

Q: That would be great, yeah, yeah.

A: And if you'd like I can show you the station downstairs.

Q: That would be really interesting, yeah, thank you.

[END OF INTERVIEW]